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METHOD OF PRODUCING PIG IRON

Emil Edwin, Oslo, Norway

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2 Claims. (Cl. 75—41)

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This invention relates to the production of pig iron in a blast furnace; it is a continuation-in-part of my co-pending U. S. patent application, Serial No. 15,495, filed March 17, 1948 now Patent No. 2,559,213.

In order to eliminate the constantly increasing difficulties of producing a suitable solid fuel for the production of iron in a blast furnace, a very successful method has been developed in conformity with the above referred-to patent application.

A gas mixture essentially consisting of free oxygen and free nitrogen and heated to about 2000° C. is accordingly blown in the melting zone of the blast furnace, which is charged with iron ore and coke; the percentage of oxygen of this gas mixture is considerably lower than 21 per cent by volume and not more than 16 per cent, preferably 5 to 10 per cent.

During the practical development of this process it has been ascertained that a further important improvement thereof is achieved, if a minimum limit is established and maintained for the temperature of the nitrogen oxygen blast.

With this purpose in view the oxygen nitrogen containing oxidizing blast is preheated to a minimum temperature of

$$(2{,}000-60\ p_o)^\circ\ C.$$

whereby p_o denotes the contents of oxygen in the gas mixture in vol./per cent.

In spite of the restriction of the oxygen content of the gas mixture a maximum effectiveness of the

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blast is secured if the claimed minimum preheating temperature is observed.

Since certain changes in carrying-out the above process could be made without departing from the scope thereof, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

What I claim, is:

1. In a method of producing pig iron in a blast furnace which includes charging into the furnace, a mixture of iron ore and coke the improvement which comprises blowing into the melting zone of the furnace an oxidizing blast which consists essentially of free oxygen and free nitrogen and is preheated to a minimum temperature of

$$(2{,}000-60\ p_o)^\circ\ C.$$

whereby p_o denotes the contents of oxygen in vol./per cent, the oxygen being present in an amount sufficient to render the blast oxidizing and not more than 16 per cent by volume.

2. A method according to claim 1 according to which the oxygen contents of the blast amounts to 5 to 10 per cent by volume.

EMIL EDWIN.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,559,213	Edwin	July 3, 1951